Early Journal Content on JSTOR, Free to Anyone in the World

This article is one of nearly 500,000 scholarly works digitized and made freely available to everyone in the world by JSTOR.

Known as the Early Journal Content, this set of works include research articles, news, letters, and other writings published in more than 200 of the oldest leading academic journals. The works date from the mid-seventeenth to the early twentieth centuries.

We encourage people to read and share the Early Journal Content openly and to tell others that this resource exists. People may post this content online or redistribute in any way for non-commercial purposes.

Read more about Early Journal Content at http://about.jstor.org/participate-jstor/individuals/early-journal-content.

JSTOR is a digital library of academic journals, books, and primary source objects. JSTOR helps people discover, use, and build upon a wide range of content through a powerful research and teaching platform, and preserves this content for future generations. JSTOR is part of ITHAKA, a not-for-profit organization that also includes Ithaka S+R and Portico. For more information about JSTOR, please contact support@jstor.org.

III.

Occultations and Eclipses observed at Dorchester and Cambridge, Massachusetts.

By WM. CRANCH BOND, A. M.,
DIRECTOR OF THE OBSERVATORY,

WILLIAM. C. BOND, Jr.,

AND

GEORGE P. BOND.

(*Communicated to the Academy, August 12th*, 1846.)

The series of observed eclipses of the sun and moon, and occultations of stars and planets, which are herewith presented to the Academy, were observed from three different stations. The first portion of them from my late residence at Dorchester; the second, from a position near Harvard Hall, in Cambridge; and the third, from the new Observatory.

The relative bearings and distances of these points have been accurately determined, and each one of them has been connected with three points of the main triangulation of the State, by Simeon Borden, Esq., superintendent of the State survey, and his assistant, Charles O. Boutelle, Esq.

The latitude and longitude of each has been separately ascertained from astronomical observations, and the resulting positions are given at the head of their respective divisions.

The whole series is now in process of final reduction, and, from the close proximity of the stations, may be concentrated on the new Observatory without danger of sensible error arising from an erroneous estimate of relative position. This important work would be greatly facilitated by the communication of corresponding European observations.

In the column headed "Observer," B. denotes that the observation was made by Wm. Cranch Bond; W., by W. C. Bond, Jr.; B.², by G. P. Bond.

The instrument generally employed for the earlier observations was a reflector of four inches aperture. For the last six years, two achromatics of three and two and three fourths inches aperture, and of nearly four feet focal length, equatorially mounted, have been used.

The occultation of Jupiter, March 29th, 1846, was observed with an equatorial, of four and one fourth inches aperture, and five feet focal length.

OCCULTATIONS AND ECLIPSES,

Observed at Dorchester. Lat. 42° 19′ 17″. Lon. 4ʰ· 44ᵐ· 17ˢ· W.

Date.	Name of Star.	Mean Solar Time of Occultation.				Observer.	Remarks.
		h.	m.	s.			
1820, Nov. 14	Jupiter and his	7	09	35	Im.	B.	4th satellite.
"	satellites	7	10	42	Im.	B.	West limb of Jupiter.
"	"	7	12	15	Im.	B.	East " "
"	"	7	15	29	Im.	B.	1st satellite.
"	"	8	20	52	Em.	B.	West limb of Jupiter.
"	"	8	22	06	Em.	B.	East " "
1821, Aug. 26	Solar eclipse	22	30	13	End	B.	Place of observation 1 s. E. of Observatory.
1823, July 22	Lunar eclipse	8	51	30	Beg.	B.	
"	"	9	58	30		B.	Beginning of total obscuration.
1824, June 26	Solar eclipse	7	27	59	Beg.	B.	
Oct. 25	Unknown star	6	09	33	Im.	B.	
1825, July 27	ο Sagittarii	7	33	22	Im.	B.	
"	"	8	19	56	Em.	B.	
"	π Sagittarii	11	04	01	Im.	B.	
Aug. 8	Aldebaran	15	25	49	Im.	B.	
"	"	16	39	53	Em.		
"	* Tauri	15	42	15	Im.	B.	
1826, March 15	Saturn	10	49	57	Em.	B.	Centre.

Date.	Name of Star.	Mean Solar Time of Occultation.				Obser-ver.	Remarks.
		h.	m.	s.			
1827, Feb. 10	2 α Cancri	7	19	54.0	Im.	B.	
Nov. 16	Spica	0	17	24.0	Im.	B.	About noon. Star distinct.
Nov. 28	ε Piscium	5	19	03.2	Im.	B.	
1828, Jan. 31	1 α Cancri	6	40	39.4	Im.	B.	
Aug. 16	λ Virginis	7	22	43.6	Em.	B.	
1829, Aug. 21	Aldebaran	11	58	54.5	Im.	B.	
"	"	13	51	37.5	Em.	B.	
Sept. 12	Lunar eclipse	12	32	15.	Beg.	B.	
"	Tycho	12	51	40.		B.	Total obscuration of centre.
Sept. 17	Aldebaran	21	19	33.6	Im.	B.	
"	"	22	19	49.0	Em.	B.	Doubtful.
Sept. 23	ο Leonis	16	19	57.8	Im.	B.	
"	"	16	56	36.8	Em.	B.	
Nov. 11	Aldebaran	17	06	35.5	Im.	B.	
"	"	17	46	57.5	Em.	B.	
1830, Jan. 5	* Tauri	5	46	50.0	Im.	B.	Instantaneous on the ☽'s dark [limb.
"	* "	6	57	16.	Em.	B.	Uncertain 10 s.
"	* "	6	05	57.	Im.	B.	10′ south of ☽'s centre.
"	160 Mayer	7	08	01.	Im.	B.	Near the ☽'s south limb.
"	α Tauri	10	14	51.0	Im.	B.	Exact.
"	"	11	12	50.	Em.	B.	Not well observed.
March 12	κ Virginis	11	33	00.	Im.	B.	A poor observation.
March 28	Aldebaran	5	06	01.0	Im.	B.	The Em. particularly fine, the star [was projected on the ☽'s disk.
"	"	6	19	51.0	Em.	B.	
July 15	"	17	33	37.0	Im.	B.	
Sept. 2	Lunar eclipse	6	55	30.	Em.	B.	Aristarchus.
"	"	7	07	00.	Em.	B.	Tycho.
"	"	7	20	15.	Em.	B.	Manilius.
"	"	7	44	15.	Em.	B.	Moon's west limb.
Oct. 4	*f* Tauri	9	44	01.0	Im.	B.	
"	"	10	07	33.0	Em.	B.	
1831, Jan. 21	μ¹ Ceti	5	54	54.6	Im.	B.	
Feb. 4	γ Libra	17	38	05.9	Im.	B.	
"	"	19	03	13.0	Em.	B.	Star is faint.
Feb. $\frac{11}{12}$	Eclipse of sun	23	50	12.3	Beg.	B.	
"	North cusp	0	13	34.2		B.	Meridian observations inst. az. 5″ [west of south.
"	☽'s east limb	0	12	41.2		B.	First wire.
"	"	0	14	15.2		B.	Middle wire.
"	"	0	15	49.7		B.	Third wire.
"	Sun's centre	0	14	39.2		B.	From transit of east limb.
"	South cusp	0	14	12.0		B.	By one passage over first wire.
Feb. 13	Venus	1	43	56.0	Im.	B.	Im. of centre. ☽ is not visible in [the telescope.
"	"	1	44	19.0	Im.	B.	Total Im.
Feb. 19	ϑ¹ Tauri	7	31	16.1	Im.	B.	

Date.	Name of Star.	Mean Solar Time of Occultation.				Observer.	Remarks.
		h.	m.	s.			
1831, Feb. 19	ϑ^1 Tauri	8	44	04.6	Em.	B.	Appeared good, but the star was [quite clear of the ☽'s limb.
"	ϑ^2 Tauri	7	40	44.6	Im.	B.	
"	"	8	36	11.	Em.	B.	Uncertain several seconds.
"	* Tauri	7	49	44.6	Im.	B.	Exact.
"	* "	8	26	13.6	Im.	B.	Exact.
"	* "	8	42	00.6	Im.	B.	Exact. Star is of the same bril-[liancy as ϑ^1 and ϑ^2 Tauri.
"	* "	8	47	41.	Im.	B.	Uncertain three or four seconds. [Star very faint.
"	Aldebaran	11	43	37.0	Im.	B.	Good.
Feb. 28	γ^1 Virginis	8	31	00.2	Em.	B.	
Aug. 28	f Tauri	16	19	12.0	Im.	B.	
"	"	17	17	20.0	Em.	B.	Dubious.
Aug. 29	γ Tauri	11	55	55.8	Im.	B.	Good.
"	"	12	43	41.8	Em.	B.	"
"	Aldebaran	20	28	19.2	Im.	B.	Very fine. A slight projection.
"	ϑ^1 Tauri	16	10	09.0	Im.	B.	
"	ϑ^2 Tauri	16	29	43.0	Im.	B.	
"	"	16	49	24.0	Em.	B.	Among the mountains of ☽'s S. [limb.
Oct. 14	π Capricorni	8	09	57.0	Im.	B.	Star tremulous on ☽'s dark limb.
Oct. 21	μ^1 Ceti	11	21	44.0	Im.	B.	Difficult to keep sight of the star.
Oct. 23	Aldebaran	7	28	58.2	Im.	B.	Lingered two or three seconds on [the ☽'s limb.
"	"	8	16	34.0	Em.	B.	Exact.
Dec. 15	μ^1 Ceti	9	41	22.4	Im. ?	B.	
1832, Feb. 16	Saturn	13	12	37.9	Im.	B.	First contact of the ring.
"	"	13	12	55.9	Im.	B.	" " west limb.
"	"	13	13	23.4	Im.	B.	Total Im.
"	"	14	29	23.0	Em.	B.	Ring first seen.
"	"	14	30	36.0	Em.	B.	Body of the planet appears distort-[ed, though the ring is well defined.
June 17	δ Capricorni	14	16	09.5	Im.	B.	Projected from the ☽'s limb for [five seconds.
"	"	14	58	58.3	Em.	B.	
July 28	Solar eclipse	7	17	07.1	Beg.	B.	
"	"	9	00	19.3	End	B.	
Sept. 7	δ Capricorni	8	49	04.2	Im.	B.	
"	"	9	59	14.8	Em.	B.	
1834, March 13	* unknown	7	45	32.0	Im.	B.	The star is brighter at the last [moment.
1836, May 15	Solar eclipse	7	25	36.0	Beg.	B.	
"	"	9	59	56.6	End	B.	
"	"	7	25	34.5	Beg.	W.	
1837, Feb. 18	Mars	5	02	27.6	Im.	B.	1st Limb. Telescope used is a 5-ft.
"	"	5	03	16.1	Im.	B.	2d " Reflector, 7-in. ap.
"	"	5	24	07.6	Em.	B.	1st "
"	"	5	25	02.6	Em.	B.	2d "
"	"	5	03	03.3	Im.	W.	Centre. 30-in. reflector.
"	"	5	24	42.3	Em.	W.	Centre.
Aug. 10	Antares	10	34	40.3	Im.	B.	Not instantaneous.

Date.	Name of Star.	Mean Solar Time of Occultation.				Obser-ver.	Remarks.
		h.	m.	s.			
1837, Sept. 13	ψ^1 Aquarii	8	08	26.2	Im.	B.	Stars are both very faint. Uncertain 5 s.
"	ψ^2 "	8	51	06.9	Im.	B.	
Oct. 13	Lunar eclipse	5	51	25.	Beg.	B.	Total obscuration.
"	"	7	18	25.	End	B.	" "
"	*1 Piscium	6	38	06.6	Im.	B.	
"	*2 "	6	40	34.0	Im.	B.	
"	*1 "	7	15	35.2	Em.	B.	
"	*2 "	7	15	35.2	Em.	B.	
"	*3 "	7	03	29.2	Im.	B.	
1838, Sept. 18	Solar eclipse	3	28	10.9	Beg.	B.	The occultations of several spots were observed.
Nov. 5	C. Geminorum	9	10	20.7	Em.	B.	Very indifferent. ☽ is low.
Nov. 13	Spica	8	32	38.4	Im.	B.	Slightly projected.
Dec. 27	η Tauri	2	51	53 *	Im.	B.	* Sidereal time.
1839, April 19	C. Geminorum	8	20	31.9	Im.	B.	
"	"	8	20	32.0	Im.	W.	
April 20	ν Geminorum	10	44	24.6	Im.	B.	
"	"	10	44	24.4	Im.	W.	
June 19	28 Virginis	8	14	31.0	Im.	B.	Occulted by a mountain. 2d Im. 8h. 16m. 11.2s.
June 20	68 Virginis	8	23	15.0	Im.	B.	A double Im., interval 0.2 s.
June 23	b Virginis	9	15	45.4	Im.	B.	Fine.
July 1	φ Aquarii	13	57	51.7	Im.	B.	
"	"	15	10	33.4	Em.	B.	Fine.
July 6	C. Pleiadum	16	13	32.5	Im.	B.	Pretty good, on the north edge of the ☽.
Sept. 11	τ Scorpii	6	42	15.0	Im.	W.	
Nov. 20	b Pleiadum	6	40	03.4	Im.	B.	
"	c 1 "	7	15	09.1	Im.	B.	
"	η "	7	46	27.4	Im.	B.	Projected.
Dec. 12	λ Aquarii	8	39	04.7	Im.	B.	Good.

OCCULTATIONS AND ECLIPSES,

Observed at Cambridge. Lat. 42° 22′ 22″. Lon. 4h. 44m. 30s. W.

Date.	Name of Star.	Mean Solar Time of Occultation.				Observer.	Remarks.
		h.	m.	s.			
1840, Jan. 20	α Leonis	9	44	31.7	Em.	B.	
July 10	τ Scorpii	10	23	45.8	Im.	W.	
"	"	10	23	46.4	Im.	B.	
Oct. 6	*d* Capricorni	8	58	41.1	Im.	B.	
"	"	8	58	43.2	Im.	W.	Observed with a telescope by Plŏpl.
Oct. 13	* Pleiadum	7	06	34.2	Im.	B.	
"	* "	7	16	24.9	Em.	B.	
"	* "	7	33	45.7	Em.	B.	
Nov. 2	ι Capricorni	6	51	36.7	Im.	B.	
"	"	6	51	36.9	Im.	W.	
Dec. 14	76 Leonis	15	56	13.2	Em.	B.	Doubtful.
1842, Jan. 21	* Tauri	6	41	04.6	Im.	B.	The stars are of the 8th or 9th mag.
"	* "	6	55	26.0	Im.	B.	Differing 12s. in A. R.
April 12	ε Arietis	7	17	19.6	Im.	B.	
June 20	Antares	8	37	01.4	Em.	B.	
1843, Jan. 24	σ Scorpii	18	06	29.3	Em.	B.	
"	"	18	06	29.6	Em.	B.[2]	
April 2	ε Arietis	7	31	35.0	Im.	B.	
Aug. 12	ϰ Piscium ?	8	01	25.4	Em.	B.	Doubtful.
Sept. 30	39 Sagittarii	9	06	49.5	Im.	B.	
Nov. 3	45 Piscium	8	37	47.6	Im.	B.	
Nov. 24	104 Piscium	13	06	15.6	Im.	B.	Uncertainty in the reduction.
Dec. 11	*b* Leonis	10	33	26.5	Em.	B.	
1844, Feb. 22	104 Piscium	7	13	23.2	Im.	B.	Appeared within the ☽'s border.
May 23	19 Sextantis	9	50	32.1	Im.	B.	
Aug. 28	* unknown	14	04	05.8	Em.	B.	
Sept. 4	105 Tauri	11	06	47.6	Em.	B.	

OCCULTATIONS AND ECLIPSES,

Observed at Cambridge Observatory. Lat. 42° 22′ 49″. Lon. 4h. 44m. 32s..

Date.	Name of Star.	Mean Solar Time of Occultation.				Observer.	Remarks.
		h.	m.	s.			
1844, Sept. 19	2150 A. S. C.	9	03	37.7	Im.	B.	
"	"	9	03	37.8	Im.	B.2	
Nov. 18	8 Piscium	9	04	40.5	Im.	B.	
"	"	9	04	40.0	Im.	B.2	
Nov. 24	51 Tauri	6	50	23.5	Im.	B.	During the lunar eclipse.
"	"	7	56	32.4	Em.	B.	" "
Dec. 9	Solar eclipse	3	45	36.0	Beg.	B.	
"	"	3	45	38.2	Beg.	B.2	
Dec. 14	51 Aquarii	9	28	21.8	Im.	B.	
"	"	9	28	20.6	Im.	B.2	
1845, Jan. 26	87 Leonis	18	43	30.4	Em.	B.	
March 1	2033 A. S. C.	15	53	39.3	Em.	B.	
"	"	15	53	39.4	Em.	B.2	
April 11	666 A. S. C.	10	33	04.9	Im.	B.	
May 5	Eclipse of sun	17	18	02.2	End		By Hon. Wm. Mitchell.
"	"	17	18	04.2	End	B.2	Uncertain, perhaps, 5 s. Sun's altitude 3°. Atmosphere clear, but disturbed.
"	"	17	18	04.3	End	B.	
July 16	58 Sagittarii	9	34	00.9	Im.	B.	
"	"	9	34	00.4	Im.	B.2	
July 17	29 Sagittarii	10	11	29.1	Im.	B.	
"	"	10	11	29.1	Im.	B.2	
Sept. 15	18 Piscium	7	09	53.0	Im.	B.	
Sept. 22	57 Orionis	11	26	24.1	Em.	B.	
"	"	11	26	21.3	Em.	B.2	Good.
"	64 Orionis	16	23	48.2	Em.	B.	"
"	"	16	23	45.7	Em.	B.2	"
Oct. 23	60 Cancri	12	42	29.8	Em.	B.	"
Nov. 10	63 Piscium	5	43	06.0	Im.	B.	Well.
"	"	5	43	05.2	Im.	B.2	
Nov. 20	2 Leonis	18	08	16.7	Em.	B.	
Dec. 6	22 Piscium	10	31	29.8	Im.	B.	
"	"	10	31	29.0	Im.	B.2	
1846, Jan. 13	60 Cancri	10	53	49.1	Em.	B.2	
Feb. 4	74 Tauri	7	05	57.9	Im.	B.	
Feb. 6	71 Orionis	9	08	00.5	Im.	B.	
"	"	9	08	00.3	Im.	B.2	
Feb. 20	16 Sagittarii	17	20	28.3	Em.	B.2	
"	"	17	20	27.4	Em.	B.	
"	17 Sagittarii	17	31	45.7	Em.	B.	

Date.	Name of Star.	Mean Solar Time of Occultation.				Obser-ver.	Remarks.
		h.	m.	s.			
1846, March 29	Jupiter	5	23	34.5	Im.	B.	First contact.*
"	"	5	24	43.5	Im.	B.	Second "
"	"	5	24	44.1	Im.	B.^{2}	" "
"	"	6	33	54.2	Em.	B.	Third "
"	"	6	34	58.8	Em.	B.	Fourth "
"	"	6	33	53.3	Em.	B.^{2}	Third "
"	"	6	35	04.7	Em.	B.^{2}	Fourth "
"	Preced. Satell.	6	32	41.7	Em.	B.^{2}	
"	Follow. Satell.	6	38	42.1	Em.	B.	
March 31	97 Tauri	10	43	09.1	Im.	B.	
"	"	10	43	08.7	Im.	B.^{2}	
April 24	Solar eclipse	23	14	17.2	Beg.	B.	5-ft. refractor.
"	"			20.7	Beg.	B.^{2}	46-inch refractor.
"	"			26.8	Beg.		R. T. Paine, reflector, 4-in. aper.
"	"			35.2	Beg.		Prof. Peirce, 20-in. Var. Transit.
April 25	Solar eclipse	1	52	23.0	End		" "
"	"			14.6	End	B.	
"	"			12.0	End	B.^{2}	
"	"			09.1	End		R. T. Paine.
May 3	2 Leonis	8	54	02.9	Im.	B.	
"	"	8	54	02.9	Im.	B.^{2}	
June 29	69 Leonis	8	26	57.9	Im.	B.	
"	"	8	26	58.0	Im.	B.^{2}	

---

* The first contact was evinced by a sudden flattening of the limb of the planet. At the Emersion, one observer noted an elongation of the body of the planet in the direction of the moon's limb, and both saw distinctly a rectangular indentation on that part of the moon's border which was in contact with the limb of the planet.